CONTRIBUTIONS
TO ENTOMOLOGY

72 (1): 081–087
2022

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SENCKENBERG

On the taxonomy and zoogeography of the Caucasian genus *Pseudotyphlopasilia* (Coleoptera: Staphylinidae: Aleocharinae). IV. Two new species and additional records from Northwest Georgia

With 24 figures and 1 map

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Published on 2022–07–31
DOI: 10.3897/contrib.entomol.72.e87240

Abstract

Two field trips to Northwest Georgia conducted in 2021 yielded 29 specimens of the Caucasian genus *Pseudotyphlopasilia* Pace, 1983, most of them collected by soil-washing. The material belongs to five species, two of them described and three of them unnamed. Two of the unnamed species are described and illustrated: *P. confusa* spec. nov. (Racha: environs of Lailashi) and *P. egrisica* spec. nov. (Zemo Svaneti: Egrisi Range). One species remains unnamed for want of males. Additional records are provided for two previously described species, including *Pseudotyphlopasilia coeca* (Eppelsheim, 1878) (type species of the genus) of which only few and mostly old specimens were previously available. New illustrations are provided for *P. coeca* and *P. acris* Assing, 2021. The genus currently contains a total of twelve named species, all of them anophthalmous and micropterous, with eleven of them distributed in Georgia and one in the Russian West Caucasus. The distributions of five species are mapped.

Taxonomic acts

Pseudotyphlopasilia confusa spec. nov. – urn:lsid:zoobank.org:act:BDAD7DE1-7CE5-4587-A82C-F23FC6CC5581
Pseudotyphlopasilia egrisica spec. nov. – urn:lsid:zoobank.org:act:36B8431D-55E8-4A48-87F0-1E7DF3522682

Key words

Coleoptera, Staphylinidae, Aleocharinae, Oxypodini, *Pseudotyphlopasilia*, Palaearctic region, Caucasus region, Georgia, taxonomy, new species, new records, subterranean habitat, endemism, distribution map

Zusammenfassung

Während zweier Exkursionen nach Nordwest-Georgien im Sommer und Herbst 2021 wurden insgesamt 29 Exemplare der in der Kaukasusregion endemischen Gattung *Pseudotyphlopasilia* Pace, 1983 gesammelt, mit wenigen Ausnahmen durch Flotieren von Bodenproben. Das Material gehört zu fünf Arten, von denen zwei beschrieben und drei unbeschrieben waren. Zwei der unbenannten Arten werden beschrieben und abgebildet: *P. confusa* spec. nov. (Racha: Umgebung von Lailashi) und *P. egrisica* spec. nov. (Zemo Svaneti: Egrisi Range). Eine Art bleibt unbenannt, da Männchen nicht verfügbar waren. Weitere Nachweise von zwei bereits beschriebenen Arten werden gemeldet, darunter *Pseudotyphlopasilia coeca* (Eppelsheim, 1878) (Typusart der Gattung), von der zuvor nur wenige Funde

bekannt waren. Für *P. coeca* and *P. acris* Assing, 2021 werden neue Abbildungen erstellt. Die Gattung enthält derzeit insgesamt zwölf benannte, allesamt ungeflügelte und anophthalme Arten, von denen elf in Georgien und eine im russischen Teil des Westkaukasus verbreitet sind. Die Verbreitungsgebiete von fünf Arten werden anhand einer Verbreitungskarte illustriert.

Schlüsselwörter

Coleoptera, Staphylinidae, Aleocharinae, Oxypodini, *Pseudotyphlopasilia*, Paläarktis, Kaukasusregion, Georgien, Taxonomie, neue Arten, neue Nachweise, subterrane Lebensweise, Endemismus, Verbreitungskarte

Introduction

According to a recent revision (Assing 2021), the Aleocharine genus *Pseudotyphlopasilia* Pace, 1983 belongs to the Meoticina of the Oxypodini and included ten species locally endemic in the Greater and the Lesser Caucasus. Nine of these species have been recorded from Georgia and one from the Krasnodar region in Southwest Russia. They are characterised by typical morphological adaptions of subterranean beetles, such as the complete reduction of eyes, the hind wings, and the palisade fringe at the posterior margin of the abdominal tergite VII, reduced pigmentation, and relatively slender legs. Accordingly, most of the known material has been collected by soil-washing. On some occasions, however, specimens have also been found by sifting and by sampling caves.

Identification of *Pseudotyphlopasilia* species is difficult, mainly as a result of often enormous intraspecific variation of external characters combined with weakly pronounced interspecific variation. The aedeagus and the spermatheca represent the most reliable diagnostic characters for a separation of the species.

Two field trips to Northwest Georgia conducted in July/August and October 2021 by Michael Schülke (Berlin) and the author yielded a total of 29 specimens of *Pseudotyphlopasilia*. A study of this material revealed that they belong to five species, two of them previously described and three undescribed. Two of the unnamed species are described in the present paper. The third species is represented only by a single female; more material including at least one male would be required for an adequate description. In the course of the present study, it was also discovered that the type material of *P. acris* Assing, 2021 is composed of two species.

Material and methods

The material treated in this study is deposited in the following collections:

MNB Museum für Naturkunde, Berlin (coll. Schülke)
cAss author´s private collection

The morphological studies were conducted using Stemi SV 11 (Zeiss) and Discovery V12 (Zeiss) microscopes, and a Jenalab compound microscope (Carl Zeiss Jena). The images were created using digital cameras (Axiocam ERc 5s, Nikon Coolpix 995), as well as Labscope and Picolay software. The map was created using MapCreator 2.0 (primap) software.

Body length was measured from the anterior margin of the labrum to the posterior margin of tergite VIII, the length of the forebody from the anterior margin of the labrum to the posterior margin of the elytra, head length from the anterior margin of the clypeus to the posterior constriction of the head, elytral length at the suture from the apex of the scutellum to the posterior margin of the elytra, and the length of the aedeagus from the apex of the ventral process to the base of the aedeagal capsule. The "parameral" side (i.e., the side where the sperm duct enters) is referred to as the ventral, the opposite side as the dorsal aspect.

Results

Pseudotyphlopasilia coeca (Eppelsheim, 1878)

(Figs 1–2, 10–11, Map 1)

Material examined: Georgia: Imereti: 1 ♂, 1 ♀, pass 25 km SE Sachkhere, 42°09'54"N, 43°35'44"E, 1190 m, deciduous forest with predominant *Fagus* and *Carpinus*, soil-washing, 23.X.2021, leg. Assing (cAss); 2 ♂♂, 4 ♀♀, 1 ex. without abdominal apex, NW Surami, Rikoti pass, 42°03'40"N, 43°28'59"E, 930 m, stream valley with chestnut and alder, soil-washing near old chestnut trees, 24.X.2021, leg. Assing (cAss).

Pseudotyphlopasilia coeca is the type species of the genus, with the type locality situated in the environs of Khashuri (Georgia: Shida Kartli). A female was recently reported from a locality to the southeast of the Rikoti pass (Assing 2021). The currently known distribution is illustrated in Map 1.

The newly collected material listed above reveals that the species is apparently subject to enormous intraspecific variation of body size and other external characters (Figs 1–2). The aedeagus is illustrated in Figs 11–12.

Pseudotyphlopasilia acris Assing, 2021

(Figs 3–4, 12–14, Map 1)

Material examined: Georgia: Kvemo Svaneti: 2 ♂♂, 1 ♀, NW Lentheki, 42°48'26"N, 42°39'56"E, 1360 m, moist beech forest, soil washing near small stream, 3.VIII.2021, leg. Assing (cAss).

The original description is based on two males (including the holotype) and one female with a damaged spermatheca from two localities near Lentheki and on two females from two close localities near Lailashi, a village approximately halfway between Lentheki and Ambrolauri. A study of the newly available material, particularly the intact spermatheca of the female, revealed that the specimens from Lentheki and Lailashi are not conspecific, so that *P. acris* is currently known only from the environs of Lentheki (Map 1). The spermatheca of *P. acris* is characterised by a conspicuous protrusion at the base of the relatively large distal portion (Fig. 14). The habitus, forebody, and the aedeagus of the newly collected specimens are illustrated in Figs 3–4, 12–13.

The material from the environs of Lailashi belongs to a new species, which is described in the following section.

Pseudotyphlopasilia confusa spec. nov.

urn:lsid:zoobank.org:act:BDAD7DE1-7CE5-4587-A82C-F23FC6CC5581

(Figs 5–7, 15–20, Map 1)

Type material: Holotype ♂: "GEORGIA [65] – Racha SE Tsageri, S Lailashi, 42°35'49"N, 42°51'15"E 510 m, soil-washing, 21.X.2021, V. Assing / Holotypus ♂ *Pseudotyphlopasilia confusa* sp. n., det. V. Assing 2021" (cAss). Paratypes: 2 ♂♂, 5 ♀♀: same data as holotype (cAss); 1 ♀: "N42°36'50 E42°52'02 (16), GEORGIA: Ratscha, Lailashi, 1015 m, Brachat & Meybohm, 19.V.2016" (cAss); 1 ♀: "N42°35'50 E42°51'17 (20), GEORGIA: Ratscha, S Lailashi, 520 m, Brachat & Meybohm, 21.V.2016" (cAss).

Comment: The two females collected in 2016 were cited as paratypes of *P. acris* in Assing (2021); for more details see the section on *P. acris* above.

Etymology: The specific epithet is the past participle of the Latin verb confundere (to confound) and alludes to the fact that this species was previously confounded with *P. acris*.

Description: Body length 2.2–3.0 mm; length of forebody 0.9–1.2 mm. Habitus as in Figs 5–6. Colouration: body pale-reddish to reddish-brown; legs yellow; antennae dark-yellow to yellowish-red; maxillary palpi dark-yellow.

Head (Fig. 7) somewhat wedge-shaped; punctation extremely fine, visible in the distinct microreticulation only at high magnification (100 x).

Pronotum (Fig. 7) nearly 1.4 times as broad as long, broadest approximately in the middle, and 1.2–1.4 times as broad as head, relatively broader in larger than in smaller specimens; lateral margins nearly obtusely angled in the middle (only larger specimens), not distinctly sinuate in posterior half, posterior angles obtusely marked; punctation moderately dense and fine, but more distinct than that of head; interstices with distinct microreticulation.

Elytra (Fig. 7) 0.62–0.72 times as long as pronotum; punctation moderately dense and somewhat asperate; interstices with or without shallow microsculpture. Hind wings completely reduced. Legs slender; metatarsomere I as long as, or slightly longer than the combined length of metatarsomeres II and III.

Abdomen: tergites III–V with anterior impressions; punctation fine and moderately dense on anterior tergites, decreasing in density towards posterior tergites, sparse on tergite VII; interstices with microreticulation composed of transverse meshes; posterior margin of tergite VII without palisade fringe; tergite VIII without sexual dimorphism, posterior margin weakly convex.

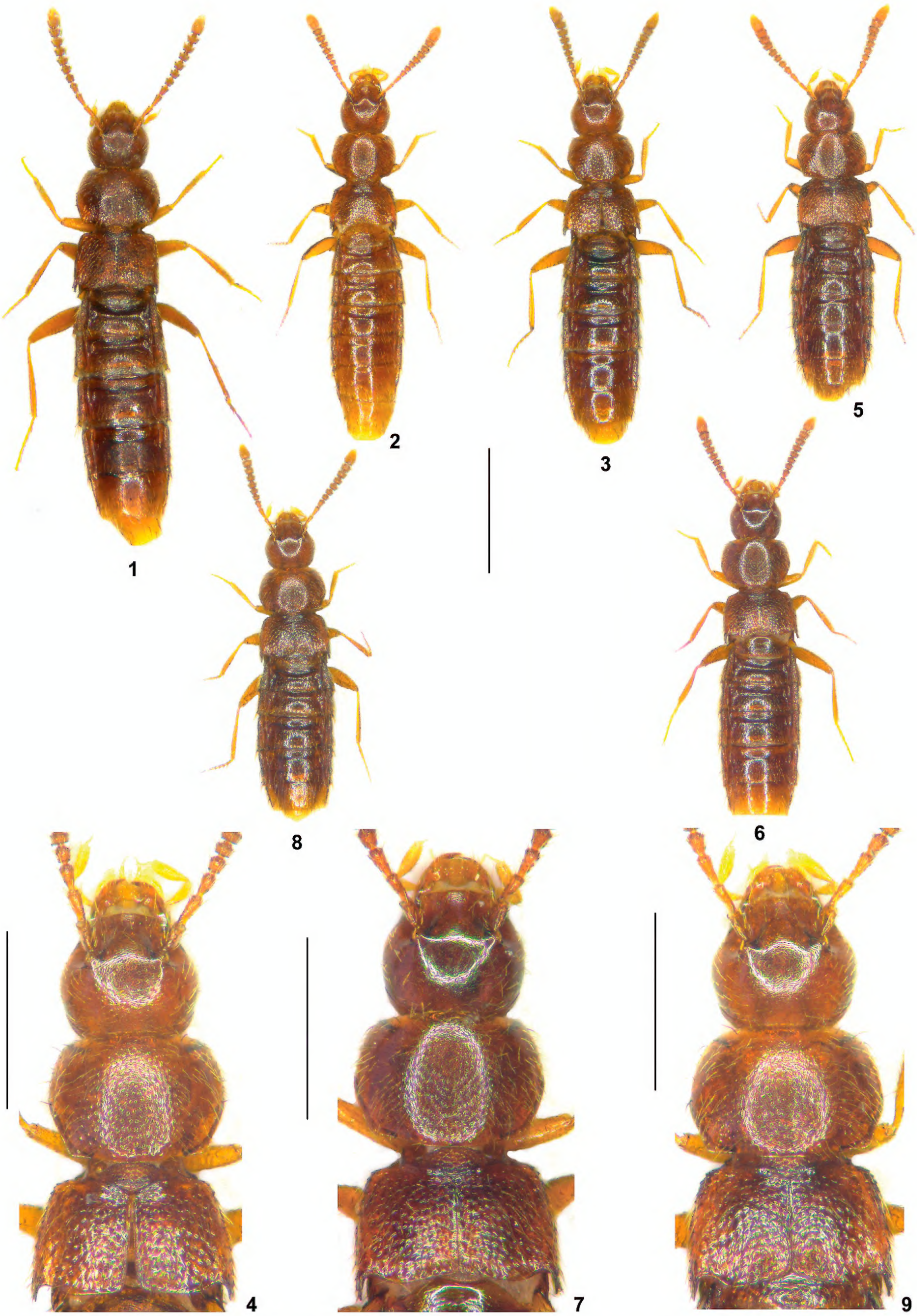
♂: sternite VIII with medially obtusely produced posterior margin; median lobe of aedeagus (Figs 15–18) 0.28–0.29 mm long; ventral process distinctly sinuate in lateral view; internal sac with short flagellum.

♀: posterior margin of sternite VIII broadly convex; spermatheca (Figs 19–20) relatively small, with slender distal portion and moderately long proximal portion; proximal portion with coils rather stout distally, gradually becoming less stout towards proximal end.

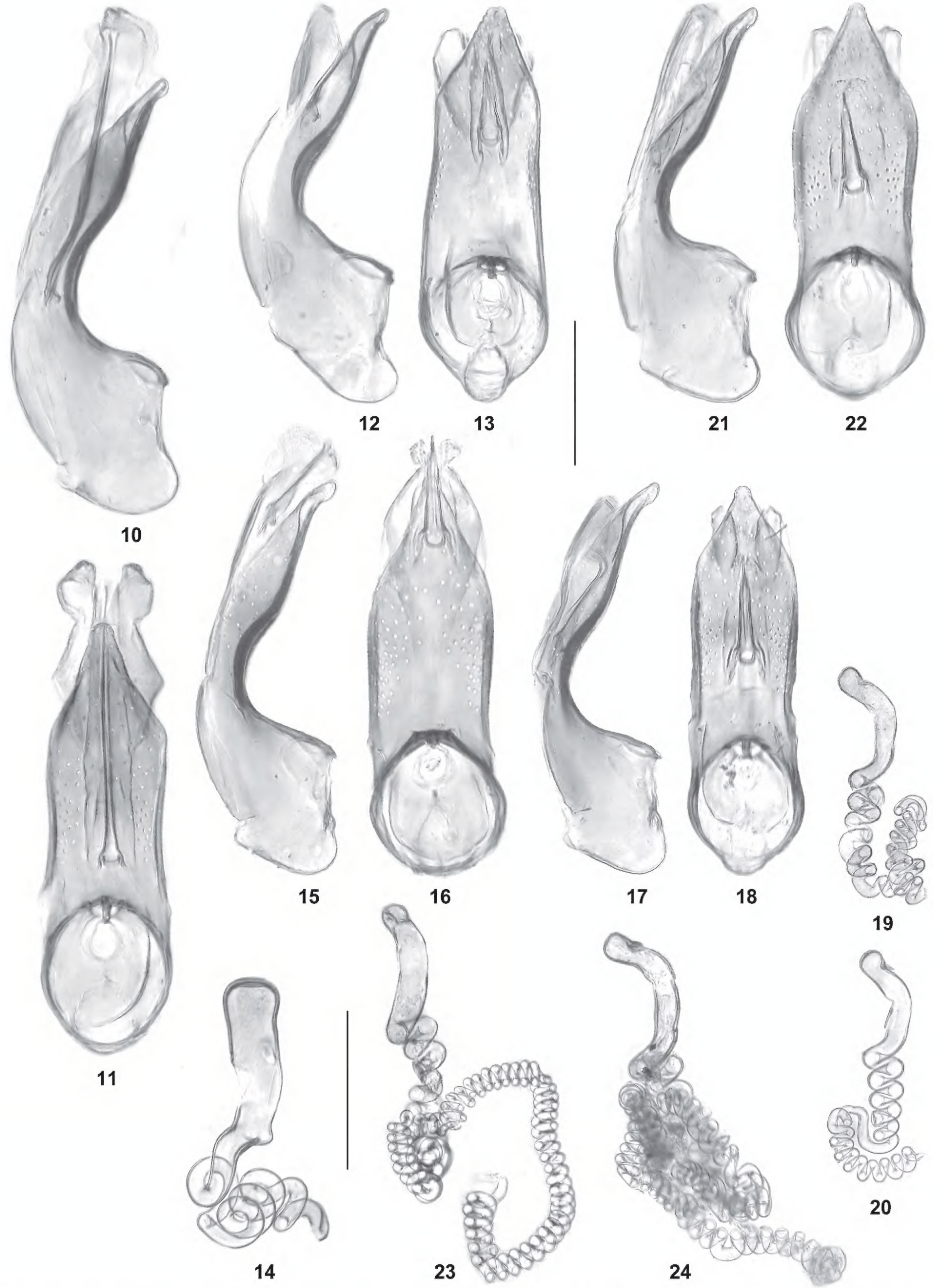
Intraspecific variation: This species is remarkably variable regarding body size, colouration (larger specimens darker than smaller specimens), and the relative size of the pronotum (larger and broader in larger than in smaller specimens).

Comparative notes: *Pseudotyphlopasilia confusa* is distinguished from the geographically close *P. acris*, with which it was previously confounded, by a broader and laterally nearly angled pronotum (only large specimens), a slightly longer median lobe of the aedeagus with a broader (ventral view) and an apically differently shaped ventral process (lateral view), and particularly by a smaller spermatheca with a smaller and more slender distal portion without a basal protrusion.

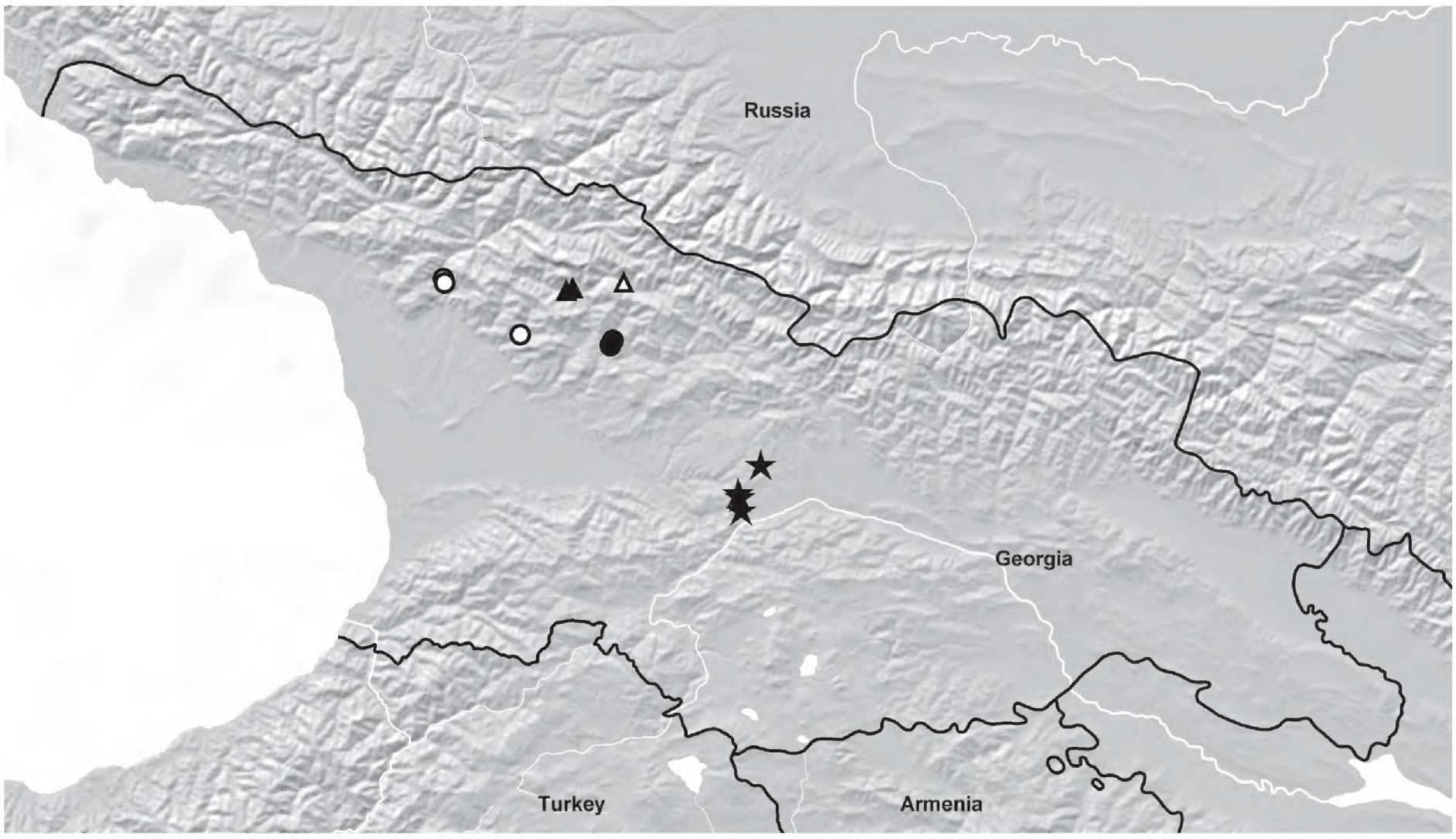
Distribution and natural history: The confirmed distribution is confined to two localities near Lailashi (Northwest Georgia: Racha) (Map 1). The specimens from the type locality were collected by soil-washing in a secondary forest with small trees near a river. The altitudes range from 510 to 1015 m.



Figs 1–9: *Pseudotyphlopasilia coeca* (**1–2**), *P. acris* (**3–4**), *P. confusa* (**5–7**), and *P. egrisica* (**8–9**). 1–3, 5–6, 8 – habitus; 4, 7, 9 – forebody. Scale bars: 1.0 mm.



Figs 10–24: *Pseudotyphlopasilia coeca* (**10–11**), *P. acris* (**12–14**), *P. confusa* (**15–20**), and *P. egrisica* (**21–24**). 10–13, 15–18, 21–22 – median lobe of aedeagus in lateral and in ventral view; 14, 19–20, 23–24 – spermatheca. Scale bars: 0.1 mm.



Map 1: Distributions of *Pseudotyphlopasilia egrisica* (white circles), *P. acris* (black triangles), *P. confusa* (black circles), *P. coeca* (black stars), and *P.* spec. (white triangle).

Pseudotyphlopasilia egrisica spec. nov.

urn:lsid:zoobank.org:act:36B8431D-55E8-4A48-87F0-1E7DF3522682

(Figs 8–9, 21–24, Map 1)

Type material: Holotype ♂: "GEORGIA [62] – Zemo Svaneti, N Jvari, 42°49'58"N, 42°01'28"E 620 m, stream valley, 18.X.2021, V. Assing / Holotypus ♂ *Pseudotyphlopasilia egrisica* sp. n., det. V. Assing 2021" (cAss). Paratypes: 1 ♀: same data as holotype (cAss); 2 ♀♀: "GEORGIA [44] – Zemo Svaneti, N Jvari, 42°49'58"N, 42°01'28"E 620 m, stream valley, 9.VIII.2021, V. Assing" (cAss); 1 ♂: "GEORGIA [GE2021-61]: Zemo Svaneti, N Jvari, 42°49'02"N, 42°01'54"E, 600 m, stream valley with mixed deciduous forest, litter sifted, 18.X.2021, leg. M. Schülke" (MNB); 1 ♂, 1 ♀ [teneral]: "GEORGIA [51] – Zemo Svaneti, N Martvili, Lebarde valley, 42°37'54"N, 42°24'28"E, 580 m, 13.VIII.2021, V. Assing" (cAss).

Etymology: The specific epithet is an adjective derived from Egrisi, the name of the mountain range where the species is most likely endemic.

Description: Body length 2.3–2.9 mm; length of forebody 1.1–1.2 mm. Habitus as in Fig. 8. Colouration: body pale-reddish to reddish-brown; legs yellow; antennae dark-yellow to yellowish-red; maxillary palpi dark-yellow.

Pronotum (Fig. 9) with smoothly convex lateral margins.

Other external characters as in *P. confusa*.

♂: sternite VIII with medially obtusely produced posterior margin; median lobe of aedeagus (Figs 21–22) 0.28 mm long; ventral process distinctly sinuate in lateral view; internal sac with very short flagellum.

♀: posterior margin of sternite VIII broadly convex; spermatheca (Figs 23–24) with slender distal portion and long proximal portion forming numerous coils, these coils very stout distally and much finer proximally.

Comparative notes: This species is distinguished from other geographically close congeners as follows:

- from *P. acris* and *P. confusa* particularly by the shape of the spermatheca (distal portion without protrusion; proximal portion with much more numerous coils, distal coils much stouter);
- from *P. cavernicola* (Assing, 2007) primarily by the shape of the aedeagus (*P. cavernicola*: ventral process nearly straight in lateral view and apically gradually narrowed in ventral view; internal sac with longer flagellum).

For illustrations of *P. cavernicola*, *P. acris*, and *P. confusa* see Assing (2007, 2021) and Figs 3–7, 12–20.

Distribution and natural history: The specimens were found in three localities in the Egrisi Range (Northwest Georgia: Zemo Svaneti) (Map 1). They were collected, partly by sifting and partly by soil-washing, in moist stream valleys with deciduous trees and at the margin of a deciduous forest. The altitudes range from 580 to 620 m. One female collected in August is teneral.

Pseudotyphlopasilia spec.
(Map 1)

Material examined: Georgia: Kvemo Svaneti: 1 ♀, E Lentekhi, S Panaga, 42°49'46"N, 42°55'09"E, 1160 m, deciduous forest, soil-washing (humus near old deciduous tree), 1.VIII.2021, leg. Assing (cAss).

The above female most likely represents an undescribed species distinguished from the geographically close *P. acris* and *P. confusa* by the shape of the spermatheca (proximal portion longer and with more numerous coils; distal portion without basal protrusion). In external characters and regarding the shape of the spermatheca, it is most similar to *P. egrisica*. The locality is illustrated in Map 1.

Acknowledgements

Benedikt Feldmann (Münster) and Michael Schülke (Berlin) proof-read and reviewed the manuscript. Their comments and suggestions are appreciated.

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